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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/671,865

09/29/2003

In-oh Hwang

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49455 7590 04/17/2007

STEIN, MCEWEN & BUI, LLP

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WASHINGTON, DC 20005

EXAMINER

ANGEBRANNDT, MARTIN J

ART UNIT

PAPER NUMBER

1756

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

04/17/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/671,865

Applicant(s)

HWANG ET AL.

Examiner

Martin J. Angebranndt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/22/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. The response of the applicant has been read and given careful consideration. Responses to the arguments are presented after the first rejection to which they are directed.
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 14 is rejected under 35 U.S.C. 102(b) as being fully anticipated by Nomura et al., “Super-resolution read only memory disk with metal nanoparticles or small aperture”, Jap. J. Appl. Phys. Pt 1, vol. 41(3B) pp. 1876-1879 (March/2002).

Nomura et al., “Super-resolution read only memory disk with metal nanoparticles or small aperture”, Jap. J. Appl. Phys. Pt 1, vol. 41(3B) pp. 1876-1879 (March/2002) describes a polycarbonate disk with pits having a depth of 50 nm and lengths of 0.2-0.4 microns is provided with a reflective layer, followed by either GR-1 (Ag particles are 5 nm in silicon dioxide), or GR-2, where the Ag particles are 10nm in silicon dioxide) over coated with a dielectric layer to prevent the GR layer from mixing with the UV curable layer (section 2.3 and section 2.1). The provision of a dielectric layer between the reflective layer and the GR layer is disclosed on page

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1878, left column. The reversal of the order of the reflective and GR layer is discussed with respect to figure 8 and appears to have no effect.

The media using GR-1 or GR-2 (Ag particles in silicon (metal) dioxide) meets the claims.

5. Claims 1-3,6-12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nomura et al., "Super-resolution read only memory disk with metal nanoparticles or small aperture", Jap. J. Appl. Phys. Pt 1, vol.41(3B) pp. 1876-1879 (March/2002), in view of Nomura et al. JP 2002-133720.

Nomura et al. JP 2002-133720 (machine translation attached) teach a near field (Super resolution) layer in a phase change optical recording medium. This layer is a dielectric layer, including SiO₂, ZnS-SiO₂, Al₂O₃ and SiN with metal particles, such as Au, Ag or Al dispersed therein. [0007].

In addition to the basis provided above the examiner holds that it would have been obvious to modify the media anticipated or rendered obvious by Nomura et al., "Super-resolution read only memory disk with metal nanoparticles or small aperture", Jap. J. Appl. Phys. Pt 1, vol.41(3B) pp. 1876-1879 (March/2002) by using other dielectric materials and/or metal particles such as the Au (gold) disclosed by Nomura et al. JP 2002-133720 in place of the SiO₂-Ag near field enhancing layer of Nomura et al., "Super-resolution read only memory disk with metal nanoparticles or small aperture", Jap. J. Appl. Phys. Pt 1, vol.41(3B) pp. 1876-1879 (March/2002) with a reasonable expectation of forming a useful optical recording medium having similar performance to that of the example of substrate/silicon/ZnS-SiO₂/GR.

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The applicant is correct, in that folding in the limitations of claim 4 obviates the prior rejection. The applicant argues that the data presented represents an unobvious advantage over Nomura et al., "Super-resolution read only memory disk with metal nanoparticles or small aperture", Jap. J. Appl. Phys. Pt 1, vol..41(3B) pp. 1876-1879. The examiner notes that only three examples are shown and that the effect will be dependent upon the density and size of the metal particles, therefore the showing is not commensurate with the scope of coverage sought as the claims currently embrace less than optimal compositions as well as those chosen by the applicant. The layers within Nomura et al., "Super-resolution read only memory disk with metal nanoparticles or small aperture", Jap. J. Appl. Phys. Pt 1, vol..41(3B) pp. 1876-1879 (March/2002) and Nomura et al. JP 2002-133720 are similar in composition and have the same disclosed effect, therefore there is a reasonable expectation of success in gaining the enhancement in the readout with the resulting super-resolution layer. As to the combinability, the examiner notes the inventors/authors in common in the two references applied and holds that this supports the analogous nature of the references and their combinability in the eye of one of ordinary skill in the art. Further, the term near field and super resolution are synonymous within the art. The rejection stands. **The applicant may wish to limit the claims to the metal being Rhodium (Rh) to obviate this rejection and those dependent upon it.**

To address the arguments of 1/22/07, both Nomura et al., "Super-resolution read only memory disk with metal nanoparticles or small aperture", Jap. J. Appl. Phys. Pt 1, vol..41(3B) pp. 1876-1879 (March/2002) and Nomura et al. JP 2002-133720 describe super resolution (masking) layers composed of a dielectric with metal particles dispersed therein. They function in the same manner and based upon the teachings of Nomura et al. JP 2002-133720 embracing

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the Ag/Silicon dioxide layers of Nomura et al., "Super-resolution read only memory disk with metal nanoparticles or small aperture", Jap. J. Appl. Phys. Pt 1, vol.41(3B) pp. 1876-1879 (March/2002), there is a reasonable expectation that other metals particles, such as Au, dispersed in silicon dioxide or the other dielectrics disclosed by Nomura et al. JP 2002-133720 known in the art to form super resolution (masking) layers as evidenced by Nomura et al. JP 2002-133720 would be able to function similarly in ROM optical recording media in place of the Ag/silicon dioxide layers disclosed by Nomura et al., "Super-resolution read only memory disk with metal nanoparticles or small aperture", Jap. J. Appl. Phys. Pt 1, vol.41(3B) pp. 1876-1879 (March/2002). The fact that the recording layer is a ROM (embossed pits) or RW (phase change) would not change how the super-resolution layer functions to decrease the spot size of the laser beam incident upon the recording layer. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The rejection stands.

6. Claims 1-3 and 5-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nomura et al., "Super-resolution read only memory disk with metal nanoparticles or small aperture", Jap. J. Appl. Phys. Pt 1, vol.41(3B) pp. 1876-1879 (March/2002), in view of Nomura et al. JP 2002-133720, further in view of **either** of Ashida et al. JP 11-213447, Yuzusu et al. JP 10-106027 or Naruse et al. JP 06-295471.

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Ashida et al. JP 11-213447 (machine translation attached) teaches Al, Ag, Au, or Cu dispersed in various dielectrics including silica, magnesium fluoride, calcium fluoride, zirconia, ZnS or titania [0027].

Yuzusu et al. JP 10-106027 (machine translation attached) teaches Fe, Co, Cr, Ti, Cu, Pt, Pd, Ni, V, Mo, W, Te Ag, Au, or Cu dispersed in various dielectrics including oxides, sulfides, carbides and nitrides and mixtures thereof [0017].

Naruse et al. JP 06-295471 (machine translation attached) teaches Ni, Pt, Ni, Cr, Co, Al, Ag, Au, or Cu dispersed in various dielectrics including silica, magnesium fluoride, calcium fluoride, zirconia, ZnS or titania [0020].

In addition to the basis provided above the examiner holds that it would have been obvious to modify the media anticipated or rendered obvious by the combination of Nomura et al., "Super-resolution read only memory disk with metal nanoparticles or small aperture", Jap. J. Appl. Phys. Pt 1, vol.41(3B) pp. 1876-1879 (March/2002) with Nomura et al. JP 2002-133720 by using other dielectric materials and/or metal particles such as the Au, Pd, Pt or the like disclosed by **either of** Ashida et al. JP 11-213447, Yuzusu et al. JP 10-106027 or Naruse et al. JP 06-295471 in place of the SiO₂-Ag near field enhancing layer of Nomura et al., "Super-resolution read only memory disk with metal nanoparticles or small aperture", Jap. J. Appl. Phys. Pt 1, vol.41(3B) pp. 1876-1879 (March/2002) with a reasonable expectation of forming a useful optical recording medium having similar performance to that of the example of substrate/silicon/ZnS-SiO₂/GR.

As discussed above, the near field layers of the prior art are super-resolution layers as they clearly increase the resolution beyond the diffraction limit of the laser (wavelength) used.

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The similarity, disclosure of equivalence and overlap of the materials used in the prior art references support the position of interchangeability and disclosed equivalent functionality. The position of the examiner is that the position of these layers adjacent to the recording layer and in the path of the laser beams allows them to function as super resolution/near field layers. The rejection stands for the reasons above.

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1-3 and 5-14 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-32 of U.S. Patent 7087284 (formerly 10/944421 (US 2005/0079313)). Although the conflicting claims are not identical, they are not patentably distinct from each other because the cited application includes the claimed mask layer as an alternative to metal oxide mask layers.

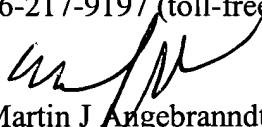
The applicant has declined to file a TD at this time. The rejection stands with the provisional nature withdrawn as the corresponding patent has issued.

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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebranndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Martin J. Angebranndt
Primary Examiner
Art Unit 1756

04/09/2007